

# BN1106 – BUSINESS DECISION ANALYSIS

**Module Number:** BN1106  
**Module Title:** Business Decision Analysis  
**Number of Aston Credits:** 10  
**Total Number of ECTS Credits:** 5  
(European Credit Transfer)

## **Staff Member Responsible for the Module:**

**Dr Gary Simpson**  
Operations & Information Management Group

ABS Building, Room 270, Extension 3241  
Email: [g.p.m.simpson@aston.ac.uk](mailto:g.p.m.simpson@aston.ac.uk)

Availability: Appointments can be made online  
[https://wass.aston.ac.uk/wass/pages/viewcalendar.page.php?makeapp=1&cal\\_id=72](https://wass.aston.ac.uk/wass/pages/viewcalendar.page.php?makeapp=1&cal_id=72)

## **Other Staff Contributing to the Module:**

???

**Pre-Requisite(s) for the Module:** BN1105 - Quantitative Techniques  
or equivalent

## **Module Learning Outcomes:**

Upon successful completion of this module students will be able to:

- Investigate business problems using appropriate Operational Research techniques, demonstrating skills in formulation and interpretation as well as proficiency with the OR techniques
- Identify where different probability distributions can be used to model business decisions and apply them to calculate the probabilities of various outcomes
- Formulate and test hypotheses using the appropriate statistical techniques and the SPSS statistical Package
- Report and interpret SPSS output.

# BN1106 – BUSINESS DECISION ANALYSIS

## Module Content:

The module consists of two parts:-

### 1. *Applied Statistical Techniques*

The aim is to build on the Basic Statistics in BN1105 an understanding of how sample data can be used to test claims and assumptions, build statistical models and provide forecasts.

### 2. *Operational Research*

The aim is to give students knowledge of how to apply some basic operation research modelling techniques and appreciate the limitations imposed by simplifying assumptions.

Week 14      Decision Rules & Decision Trees

Week 15&16 Probability Distributions  
                  The Poisson, Binomial and Normal distributions

Week 17&18 Introduction to Confidence Limits & Hypothesis tests

Week 19&20 More Hypothesis tests

Week 21&22 Differentiation & Optimisation  
                  Rules of differentiation, finding first & second derivatives  
                  Locating local and global maximum and minimum values  
                  (Further study: Partial differentiation)

Week 23&24 Linear Programming (formulation & graphical solution)

Week 25      Revision Week

## International Dimensions:

Data from international sources is used where appropriate to illustrate the mathematical and statistical techniques.

## Corporate Connections:

Where possible, examples will be used within a company context.

## Links to Research:

The lecturer is an active researcher applying mathematical and statistical techniques to business problems. They are also interested in pedagogic research and the introduction of self assessment tasks into this module is a reflection of that interest.

# BN1106 – BUSINESS DECISION ANALYSIS

## Learning and Teaching Rationale and Methods:

A one hour weekly lecture covering either Operational Research or Applied Statistical Techniques introduces the students to the topic and provides worked examples of the techniques. Three Blackboard quizzes provide a framework for an individual statistical investigation and detailed feedback on their performance.

In addition students should attempt all the self assessment tasks on the Blackboard VLE. The performance of these tasks both enables students to identify objectively what they are able to. The fortnightly tutorials then provide a forum to discuss any difficulties and consolidate understanding before the final exam.

### Contact and directed learning

Lectures	12 hours
Tutorials	6 hours
Examination	1.5 hours
Coursework Task (in Blackboard)	15 hours

### Self directed learning

Participation self assessment tasks	12 hours
Reflection on lectures and tutorials	12 hours
Further practice and study	32 hours
Exam Revision	9.5 hours

**Total** **100 hours**

## Ethical Approval:

This module does not require any primary research and while data may be collected by students for analysis this is already in the public domain and no ethical approval will be necessary.

## Assessment and Feedback Rationale and Methods:

The assessment is via a one and a half hour open book examination (80%) and a piece of coursework which involves completing three blackboard quizzes (20%).

The first quiz has no weighting but provides the student with individual data sets. The second quiz assesses understanding of confidence limits for means and proportions and checks the student has generated the required SPSS output (10%). The third quiz assesses hypothesis testing and again checks the student has generated the required SPSS output (10%). The quizzes are computer marked and the mark and feedback will be provided after the completion deadline.

## **BN1106 – BUSINESS DECISION ANALYSIS**

The exam is used to ensure that the student own understanding is being assessed and that their fluency with the techniques is assessed under time pressure. The exam is open book as the assessment focuses on conceptual understanding and mastery of techniques rather than factual recollection.

Verbal feedback will be provided through discussion with the lecturer and tutors as the module progresses. Students also have frequent opportunities for self assessment through the use of both self paced learning materials and the weekly tasks and quizzes in blackboard so students can monitor their own learning.